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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YEE, DEBORAH

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,628	Applicant(s) YOKOI ET AL.	
	Examiner Deborah Yee	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 to 4 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. There is no antecedent basis in claim 1 for "said hot rolled welded steel sheet". To provide antecedent basis, it is recommended to amend preamble of claim to recite -- hot-rolled welded steel sheet—. On the other hand, claim 1 can be amended as suggested by the previous office action by using language such as --wherein an effective amount of solid solution C is present in said hot rolled steel sheet to achieve excellent softening resistance of the weld heat affected zone when welded--.

4. Claims 2 to 4 and 10 are rejected because they are dependent on claim 1.

5. Claim 10 is indefinite because it recites the presence of Ti and Nb carbides yet it does not recite Nb as an alloying constituent and its parent claim 1 does not recite Nb as an alloying constituent. To add clarity, it is recommended to incorporate 0.01 to 0.5% Nb as an alloying constituent to claim 10.

6. Claim 10 recites "bainitic ferrite and bainite structures contained in the hot-rolled steel sheet before welding not including carbides inside ferrite laths and between ferrite laths other than Ti and Nb carbides" which is indefinite. Note last paragraph bridging pages 8 and 9 of the instant specification, defines this recited structure only for bainitic

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ferrite and acicular ferrite. Therefore, it is recommended to omit "bainite" from this definition such that claim should recite ---microstructure is composed of only bainitic ferrite and bainite, wherein the bainitic ferrite structure contained in the hot rolled steel sheet before welding does not include carbides inside ferrite laths and between ferrite laths other than Ti and Nb carbides.---

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 408157957 ("JP-957") for the reasons set forth in the previous office actions dated October 15, 2008 and February 13, 2008.

Response to Arguments

9. Applicant's arguments filed February 17, 2009 have been fully considered but they are not persuasive.

10. Examiner indicated claims would be allowable if claims were amended to incorporate the limitation ---wherein an effective amount of solid solution C is present in said hot rolled steel sheet to achieve excellent softening resistance of the weld heat affected zone when welded--. However, upon further consideration, claims 1,3, 4 and 10 would not patentably define over JP-957. Note that JP-957 discloses specific bainitic-ferritic steel example P in table 1 that closely meet the claimed composition; and

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when calculated with the claimed equation $C - (12/48Ti - 12/14 - 12/32S)$, has a value of 0.0012 which is within the claimed range of 0 to 0.05.

Allowable Subject Matter

11. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: Hot rolled steel sheet having a microstructure composed of only bainitic ferrite and bainite and a defined composition with the addition of 0.01 to 0.5% Nb and further contains Nb in the equation satisfying $0 < C - (12/48Ti - 12/93Nb - 12/14N - 12/32S) \leq 0.05$, as recited by claim 2, is not taught or suggested by the art of record.

13. The present invention requires solid solution C to be present in hot rolled steel sheet in an effective amount to cause Mo or Cr to cluster or precipitate during welding to suppress the softening of the weld heat affected zone (HAZ). Hence an effective C content in solid solution is obtained by meeting the equation:

$0 < C - (12/48Ti + 12/93Nb + 12/14N - 12/32S)$. Criticality for equation is demonstrated in table 1 and 2 of Applicant's specification. In particular, comparative example D meets the claimed composition but does not meet the claimed equation with a value -0.006. As a result, the softening degree of the HAZ (ΔHv) = 90 was very large.

14. Claims patentably define over JP-957 since prior art does not meet or suggest the present invention composition and equation. Moreover JP-957 in paragraphs [0011], [0016] and [0017] teaches away from the objective of present invention by avoiding the

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presence of solid solution C in the hot rolled steel because it degrades elongation flanging properties.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner, Art Unit 1793

/DY/